

## New Species of Land Snails from the Eastern United States

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### *Stenotrema angellum*, new species.

SHELL IMPERFORATE, lens-shaped, spire convexly conoid, whorls 5 to 5.5, nearly flat; base convex; periphery bluntly angular in front, becoming somewhat rounded behind the lip. Color cameo brown to snuff brown. Embryonic sculpture of minute radially elongate granules, later whorls with irregular radial striae and short hairs which on the upper surface have radially elongated bases, on the lower surface the bases of the hairs are spirally elongated. Aperture narrow, parietal tooth brownish, long, gently curved, high, leaning towards the basal lip, its outer end curving into the aperture, axial end curving towards the basal lip but separated from it by a deep sinus. A distinct buttress connects the parietal tooth with the termination of the outer lip. Basal lip wide, adnate, inner edge thick, pale brown, with a rather small V-shaped median notch. Interdenticular sinus rather narrow and moderately deep. Outer lip with a very low tooth. Fulcrum well developed.

Height 6.4 mm.	diameter 10.9 mm.	whorls 5.3	Holotype.
Height 6.5 mm.	diameter 10.8 mm.	whorls 5.5	Paratype.
Height 6.0 mm.	diameter 10.0 mm.	whorls 5.4	Paratype.
Height 6.0 mm.	diameter 11.0 mm.	whorls 5.3	Paratype.

Localities.—INDIANA: Jefferson Co.: Ohio River Bluff, 1 mile north of Marble Hill. Clark Co.: hillside, 1.5 miles northeast of Charlestown. Harrison Co.: Blue River Bluff, 1 mile west of White Cloud. Crawford Co., Wyandotte. KENTUCKY: Trimble Co.: ravine, near Milton. Franklin Co.: Frankfort. Meade Co.: Ohio River bluff, 5 miles east of Brandenburg; ravine, below Morgans Cave, Otter Creek Park. Anderson Co.: Kentucky River Bluff, just north of Tyrone. Woodford Co.: Kentucky River bluff, west of Versailles. Mercer Co.: Kentucky River Bluff, 1 mile northeast of Shakertown; Kentucky River bluff, near Brooklyn Bridge. Jessamine Co.: Jessamine Creek bluff, at Glass Mill, southeast of Wilmore cedar woods, Camp Nelson, holotype 622091 and paratypes 622092 U. S. National Museum, other paratypes 19036, collection of the author. Garrard Co.: Kentucky River bluff, north of Bryantsville. Edmonson Co.: Green River bluff, near Mammoth Cave; base of Indian Hill, 1 mile northeast of Brownsville. Hart Co.: Green River bluff, 1.5 miles south of Linwood. Green

Co.: creek bluff, 4.5 miles south of Exie. Adair Co.: upland oak woods, 5 miles southeast of Columbia. Russell Co.: mountainside, near Wolf Creek Dam. Pulaski Co.: Cumberland River bluff, Burnside. Warren Co.: Barren River bluff, at Ky-101, south of Three Forks; ravine, Friendship Spring, 1.4 miles south of Alvaton. Logan Co.: edge of cedar woods, 3 miles northeast of Russellville. Cumberland Co.: roadside, 1 mile northeast of Dubre; near Dutch Creek Cave, 2.2 miles north of Waterview. TENNESSEE: Clay Co.: fossil, talus, 4 miles southwest of Celina. Jackson Co.: fossil, talus, 10 miles northeast of Gainesboro.

*Stenotrema angellum* may be readily distinguished from *S. stenotrema* (Pfr.), with which it is frequently found, by the depressed shape, subangular periphery, and by the radially expanded bases of the hairs on the upper surface of the shell.

**Mesodon burringtoni**, new species.

*Mesodon mitchellianus downicanus* (Bland), Hubricht, 1950, *Nautilus* 64: 7.

Shell depressed-globose, with conoidal spire, translucent pale corneous to coppery, glossy, imperforate. Whorls 4 to 5, somewhat flattened above with impressed sutures. Embryonic whorls smooth, with fine close rib-striae beginning near the end of the second whorl, microscopic impressed spiral lines beginning about the middle of the third whorl. Last quarter whorl rapidly expanding, decending in front, with a furrow behind the lip. Peristome white, reflected, thickened within. Parietal callus thin and transparent.

Tip of the everted penis with a lobed fan-shaped process, the lobes lavender colored.

Height 10.4 mm.	diameter 14.3 mm.	Holotype.
Height 8.6 mm.	diameter 11.9 mm.	Paratype
Height 11.1 mm.	diameter 14.4 mm.	Paratype.
Height 11.3 mm.	diameter 16.6 mm.	Greendale.
Height 8.6 mm.	diameter 11.7 mm.	Altavista.

Localities.—VIRGINIA: Campbell Co.: near the river, Altavista. Pittsylvania Co.: bluff along Staunton River, opposite Altavista. Staunton River bluff, Smith Mountain Gorge, 5 miles north of Sandy Level. Montgomery Co.: near the railroad, Radford. Smyth Co.: near North Fork Holston River, Chatham Hill, holotype 202184, and paratypes 202183 Academy of Natural Sciences of Philadelphia, other paratypes A9020, collection of the author; Loenst Cove Creek bluff, 4 miles east of Broadford. Washington Co.: ravine, 1.4 miles northwest of Greendale; bluff along North Fork Holston River, 2 miles southeast of Hyters Gap. WEST VIRGINIA: Fayette Co.: railroad embankment, Belva. Mercer Co.: Spanishburg (M.C.Z.). TENNESSEE: Hamilton Co.: Chattanooga; Sawyer Springs (A.N.S.P.).

*Mesodon burringtoni* is most closely related to *M. wheatleyi* (Bland) which has a similar fan-shaped process on the tip of the everted penis, but it is pigmented a dark slaty-blue.

This species has been confused with *M. downianus* (Bland) and *M. mitchellianus* (Lea). It differs from *M. downianus* in having finer rib-striae and a larger more globose shell. *M. mitchellianus* does not have the fan-shaped process on the tip of the everted penis.

This species, distinguishable by anatomical characters, is named in honor of the land snail anatomist, Dr. Horace Burrington Baker.

### *Triodopsis burchi* Hubricht

*Triodopsis tennesseensis burchi* Hubricht, 1950, *Nautilus* 64: 8.

Shell depressed with low conoidal spire, buffy brown in color, glossy, umbilicate, the umbilicus contained about 7 times in the diameter of the shell. Whorls 4.5 to 5.5, body whorl with rounded periphery, not descending in front, channeled behind the lip. First two whorls of spire smooth or nearly so, third whorl with numerous growth wrinkles, last two whorls finely rib-striate, spiral lines absent. Aperture somewhat triangular in outline, lip flatly reflected, rather narrow, thickened within, with a very small conical tooth on the upper lip and a similar tooth on the basal lip. Parietal tooth rather short but high.

Height 5.5 mm.	diameter 10.9 mm.	whorls 4.8	Holotype.
Height 6.7 mm.	diameter 12.5 mm.	whorls 5.0	Paratype.
Height 4.1 mm.	diameter 7.6 mm.	whorls 4.5	Brier Mtn.
Height 7.8 mm.	diameter 17.4 mm.	whorls 5.5	Bent Mtn.

Localities.—VIRGINIA: Montgomery Co.: Lafayette (A.N.S.P.). Roanoke Co.: Poor Mtn., 2.2 miles northwest of Airpoint; near dripping spring, Bent Mtn., near head of Back Creek; 3700 ft., Poor Mtn., south of Glenvar; Salem; near mouth of Dry Hollow Cave, 1.5 miles south of Olaf. Bedford Co.: Summit of Smith Mtn., 20 miles south of Bedford. Franklin Co.: 6.5 miles northeast of Figsboro; 6 miles southeast of Henry Fork; Bald Knob, Rocky Mount; Ferrum. Patrick Co.: 3.5 miles southwest of Nettleridge; low woods near creek, 1.5 miles northwest of Patrick Springs; 1 mile west of Penns Store. Henry Co.: ravine, Turkeycock Mtn., head of Terry Creek, 4 miles west of Callands; Ridgeway; Martinsville. Pittsylvania Co.: Smith Mtn. Gorge, 5 miles north of Sandy Level; summit of Smith Mtn., 3.5 miles northwest of Sandy Level; Staunton River bluff, 3 miles northwest of Brights; hills above Staunton River, 2 miles northeast of Hurt; Brier Mtn., north of Callands; summit, Judy Bird Mtn., 3.5 miles southwest of Bachelors Hall; Sandy River bluff, 4 miles northeast of Bachelors Hall, woods, 4 miles east of Bachelors Hall; along US-58, 3 miles west of Danville, holotype and paratypes 186178 A.N.S.P., other paratypes A8422, collection of the author; woods, 1.5 miles west of Schoolfield; 1 mile north of Schoolfield; oak ridge, along

Mt. Cross road (Va-750), 1 mile northwest of US-58, west of Danville; Danville; along Cascade Creek, 2 miles south of West Fork. NORTH CAROLINA: Rockingham Co.: 1.8 miles northeast of Mayodan; summit of Mayo Mtn., 1 mile east-northeast of Mayodan; 5 miles east of Draper. Guilford Co.: 5.5 miles northwest of Julian. Davidson Co.: 4.5 miles south of Handy; 3.8 miles south of Fair Grove. Randolph Co.: 1.3 miles north of Staley. Montgomery Co.: 2 miles northwest of Eldorado.

*Triodopsis burchi* is a species of the western Piedmont, which has spilled through the Roanoke Gap in the Blue Ridge Mountains, into the Great Valley. It has climbed the mountains in a small area in Roanoke County, where it has become quite large. In North Carolina it occupies a narrow belt between the range of *T. juxtidentis* (Pilsbry) on the east, and *T. pendula* Hubricht on the west. Within its range it is the dominant dentate *Triodopsis* of the upland oak woods.

Additional collecting has shown this snail to be a distinct species rather than a subspecies of *Triodopsis tennesseensis* (Walker) as originally treated. It has been felt advisable, therefore, to describe it more fully. It is probably more closely related to *T. complanata* (Pilsbry) than to *T. tennesseensis*.

#### *Triodopsis picea*, new species

Shell depressed-globose, with convexly conoid spire, dull snuff brown in color, periphery rounded, sutures well impressed. Umbilicate, the umbilicus contained about 6.5 to 7 times in the diameter of the shell. Sculpture of rather coarse rib-striation, which continues onto the base of the shell; entire surface, except nuclear whorls, covered with papillae. Whorls slowly increasing, periphery of body whorl rounded, descending slightly in front, with a deep furrow behind the lip. Aperture somewhat dished, lip reflected, with a heavy white callus within, outer lip-tooth broad, blunt, only slightly inflected, basal tooth narrow, seated on a nearly straight callus ridge. Parietal tooth high, long, nearly straight.

Height 8.6 mm. diameter 13.7 mm. Holotype.

Height 7.9 mm. diameter 11.9 mm. Paratype.

Height 8.1 mm. diameter 14.2 mm. Paratype.

Height 9.7 mm. diameter 14.8 mm. Webster Co.

Localities.—WEST VIRGINIA: Pendleton Co.: 4400 ft, Spruce Knob, holotype 202186, and paratypes 202185 A.N.S.P., other paratypes 11895, collection of the author. Webster Co.: wooded hillside, 1 mile east of Three Forks of William River. Fayette Co.: mountainside, 4.5 miles northwest of Rainelle.

*Triodopsis picea* is related to *T. fraudulentata* (Pils.) and *T. juxtidentis* (Pils.), appearing intermediate between the two. The teeth are similar to those of *T. fraudulentata* but not as large. It resembles *T. juxtidentis* in the smaller umbilicus. It is often higher spired than either of the above species, and is unique in having papillae over the upper surface of the shell.

***Triodopsis palustris*, new species.**

Shell depressed, of 5.5 whorls, snuff brown in color, somewhat glossy. Umbilicate, the umbilicus contained about 6.5 times in the diameter of the shell. Embryonic 1.5 whorls smooth or with very fine radial striae, later whorls closely rib-striate. Last whorl well-rounded with the periphery above the middle, decending in front, contracted behind the lip. Lip reflected, with a thin white callus within; with a small tooth, a little immersed on the outer margin; and a small basal tooth, with a callus extending towards the columella. Parietal tooth of moderate size, curved, tongue-shaped.

Height 7.0 mm. diameter 13.2 mm. Holotype.

Height 8.4 mm. diameter 15.2 mm. Paratype.

Height 6.2 mm. diameter 11.9 mm. Paratype.

Localities.—SOUTH CAROLINA: Berkeley Co.: flood-plain of Santee River, 5.5 miles northwest of St. Stephens, holotype 202187, and paratypes 202188 A.N.S.P., other paratypes 10410, collection of the author. Williamsburg Co.: flood-plain of Santee River, 2 miles north of Jamestown. Georgia: Altamaha Swamp (A.N.S.P.). Screven Co.: flood-plain of Savannah River, 17 miles north-east of Sylvania.

*Triodopsis palustris* resembles *T. hopetonensis* (Shuttleworth), but this seems to be due more to similar degeneration than to close relationship. It is probably more closely related to *T. pendula* Hubricht. It is a species of the flood-plains of the larger rivers of South Carolina and Georgia.

***Mesomphix ruidus*, new species.**

Shell perforate, depressed, dull pale Saccardo's umber above, glossy ueru-olive below. Whorls 5 to 5.5, well rounded, sutures moderately impressed. First whorl nearly smooth, later whorls rib-striate, last whorl distinctly but finely rib-striate above and on the sides, but becoming very weakly so below. Very weak papillose spiral threads beginning on the second whorl, becoming more strongly developed on

later whorls, well developed on the last whorl above and on the sides, but weak or wanting below. Lip thin, aperture a little wider than high.

Height	Diameter	Aperture	Ht. Aper.	Diam.	
14.3 mm.	20.8 mm.	10.6 mm.	11.2 mm.		Holotype.
13.0 mm.	19.7 mm.	9.4 mm.	10.2 mm.		Paratype.
13.9 mm.	20.7 mm.	10.0 mm.	11.0 mm.		Paratype.
14.9 mm.	22.0 mm.	10.8 mm.	11.9 mm.		Paratype.

Penis rather short, club shaped, with a slender terminal appendage which is about one-half as long as the penis. Interior of penis uniformly papillose, with a single pilaster extending downward from the opening of the epiphallus. Retractor muscle moderately heavy. Epiphallus rather stout, a little longer than the penis, entering the penis about one-third from the end. Spermathecal duct short, spermatheca large, ovoid, Free oviduct about as long as the penis.

Localities.—INDIANA: Harrison Co.: near Mosquito Creek, 1 mile north of New Boston. KENTUCKY: Meade Co.: Ohio River flood-plain, just east of Brandenburg, holotype 202182, and paratypes 202181 A.N.S.P., other paratypes 16451, collection of the author. Edmondson Co.: Green River flood-plain, near River Styx, Mammoth Cave National Park. TENNESSEE: Montgomery Co.: near Dunbar Cave, near Clarksville.

*Mesomphix ruidus* may be distinguished from *M. vulgatus* H. B. Baker, by the higher spire and coarser sculpture of the shell, and by the presence of a distinct appendage on the penis.

#### ***Helicodiscus triodus*, new species**

Shell discoidal, the spire flat or nearly so; dull pale corneous, opaque; umbilicus wide and shallow, showing all the whorls, contained from 2 to 2.5 times in the diameter of the shell. Whorls 4.5, well rounded, very narrow and slowly increasing, sculptured with numerous spiral threads. Aperture lunate, the peristome thin. Occurring at irregular intervals within are pairs of small conical teeth on the outer and basal walls, on the parietal wall in front of each pair of teeth is a broad flat-topped tooth, buttressed behind. There are usually three or four groups of teeth in the last whorl. The teeth in the preceding whorls are absorbed as the shell grows.

Height 1.5 mm.	diameter 4.0 mm.	Holotype.
Height 1.6 mm.	diameter 4.2 mm.	Paratype.

Type locality.—WEST VIRGINIA: Fayette Co.: in shale talus, below Cane Branch Falls. 1.3 miles southeast of Gauley Bridge, holotype 202180, and paratypes 202179 A.N.S.P., other paratypes A8765, collection of the author.

*Helicodiscus triodus* may be readily distinguished from *H. parallelus* (Say) by its larger size, shallower umbilicus, coarser sculpture on the nuclear whorls, finer but more numerous spiral threads on the later whorls, and by the presence of a tooth on the parietal wall in front of the paired teeth on the outer and basal walls.

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